lifeClipper

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- abstract -

lifeClipper is an outdoor art project, which aims at exploring new design pattern languages in the field of augmented realities through ambient computing. A new quality in perception emerges through manipulating a live streamed scene with various real-time-rendered filters, scenes, 2D and 3D pictorial information, and sound. The new quality in experience, as reported by many lifeClipper users, gives rise to some more fundamental considerations about the nature of data, mediation, objectivity, sensation, and the virtual. It is argued, along with authors like Brian Massumi, Gilles Deleuze, and Michel Serres, that the virtual should not simply be equated with the artificial, the digital, or the possible – for the challenge virtuality poses is to view mediation not as opposed to the immediate, but in their mutual interplay and complementarity - in their convolution.

1 Augmenting Reality - the lifeClipper Entourage

lifeClipper is an outdoors art project. It could also be a project about the human experience of space and time and their authentic alteration as a topic of cognitive psychology. Or about optimized, multimodal edutainment. Perhaps also as a training station for computer game programmers. But lifeClipper is an outdoors art project, so far.

Briefly, lifeClipper offers a particularly new walking experience. Using a head-mounted display (HDM), a completely immersive mixed reality is being created: on the one hand, the scene of the natural surrounding of the walking person is being live-streamed, causing slight shifts of perception through inevitable timely delays, while on the other hand, properly designed scenes, film snippets, information, various filters, sound, or images of artifacts are being superpositioned. The effect emerging from this artfully designed augmentation is a new impression of reality.

Our fascination for the virtual results from our attraction to the real – the sensuous and meaningful richness of experiencing the world anew, every day again. lifeClipper is not driven by an interest to perfect AR and VR technologies, but by our interest to find a design or pattern language to create expressions using digital technologies. One of the crucial potentials of media of any kind is to render the world perceptible in a way that transcends our immediate sensual or intellectual capacities; it is first of all in this sense that we speak of augmenting reality. Maybe speaking of augmenting sensuality would be more appropriate. Or: augmenting reality through mediating what we perceive as immediate. lifeClipper blurs the borders between subjective and objective perception by immersing the visitor into the strangeness of his spatial circumstances, allowing him to contemplate alien perspectives, artistic compositions, as well as historical and cultural reflections.

The St.Alban valley in our hometown Basle, Switzerland, accommodates places that are of crucial historical importance for the growth of Basle into the place it has become today. We have been fascinated by the enormous richness of cultural heritage and immediate presence of that place, and with lifeClipper, we have explored means of making this part of Basle accessible in its many facets, in its co-incidence of various moments in time.

When walking around the St.Alban Valley, the visitor's position and viewing direction is measured by means of GPS and compass. The individual and on-the-fly streamed representation of the found situation is then augmented according to defined presets. Live captured images and sounds are displayed in real time on a Head Mounted Display (HMD), with inevitable and yet slight alterations. The parameters for displaying these images are processed, composed and mixed by lifeClipper, adding contextualized, simulated information to streamed images.

2   Data – Reconsidered in Terms of Virtuality

Data means literally that which is given, it is the plural form of the latin word '*datum*'. Especially in the computer world, we think of data as that which is available in standing-reserve, as possibilities that are stored for us to make something out of. To reconsider data in terms of virtuality evokes another reading in the sense of *date*: the given also refers to the circumstantial, to the very surroundings as something is being carried out, read, signed, to the enframing moment in space and time - Basle, Mai the 21st, as Jan and I are composing this text for the conference in Ghent, which is to take place this coming autumn. What is the date of this room, for example? The table at which I am writing just now. I found it in a second hand store two years ago, attracted to it because it reminded me of the table at which I used to peel apples as a child, with my granddad – almost 30 years from now. The 6 chairs – they are to be considered individually with regard to their dates, they each have a different heritage. I have collected them over the years. The house where my apartment is located on the top floor might date back approximately 200 years – but then, the house has probably changed a lot in the meantime; so much so that it is questionable whether it makes sense to speak of the same house at all. Sitting in my tiny roof chamber, reflecting upon the uncountable intermingling stories that pop up all around me while trying to evaluate the date of this room, suddenly feels greatly extended, and not so small and homogenous at all anymore. As I come to realize – I am surrounded by, and in fact myself forming part of a bouquet of times, convoluting in the present moment.

lifeClipper has engaged in spacing the data of a public place, with regard to the various dates of this data – out from the stillness of an ancient cemetery to the wild rave party of today. The interest thereby has not so much been a hermeneutic one, trying to re-establish the historical complexity or the present demography of the St.Alban Valley, but rather to sensually augment the present with what it implies. This attitude, we believe, will gain more attention as the virtual ceases to strive for the displacement of the real world and instead percolates into smart materials, intelligent environments, augmented realities and ubiquitous computing. Stressing the local and site-specific together with the global and purely abstract - as it is the aim of lifeClipper - is of conceptual relevance also for a new understanding of interfaces beyond a man-machine metaphoric. What we embrace about simulation is not the totalitarian vision of being able to artificially reproduce a scenario, but to become able to increasingly understand the world's complexity and to participate in the unfolding of events.

3   The Space within Information

Accordingly, the visitor of lifeClipper is not a navigator – his practice is that of wayfinding. The lifeClipper experience exponentially gains in richness when visitors seek an attunement of their own movements with the movements of his or her surroundings. It is the depth of information that is to be explored. Attentiveness to qualities of the material world

other than the visual is crucial thereby. All five senses are entangled with our being. It is through them that we are entangled with the things of the world – as Michel Serres argues[1].

4   Mediation in Folds

In his recent book "Digital Ground", also Malcolm McCullough stresses the need to ground the abstract back into the dimensions of the concrete, to ground the discrete and digital into the continuous and analog: "[…] so virtual reality left out some important details such as the fact that we orient spatially not just with our eyes but as well with our body."[2] Site-specific computing as "ambient computing" fosters the tendency to treat different layers of our surroundings and experiences separately, and thus to render them accessible in a discrete way: the well known pavement will feel oddly estranged beneath our feet when the images or sounds that accompany our walk are altered. Just as sipping a latte freddo in the morning sun in my favorite café feels different since I know that I can check my emails from there. Media have the potential to introduce breaks into our homogenous flow of experience. Detaching what we usually think together – think of the strange impact on people when with the invention of the telephone, the voice was separated from its bodily presence; or when it became possible for movies to treat sound and image separately – opens the familiar to new dimensions. Who could have imagined what powerful an impact the invention of the electric light bulb had on our social lives? The challenge is to view mediation not as opposed to the immediate, but in their mutual interplay and complementarity - in their convolutions.

5   The Chatter of Things | Media Matters

lifeClipper addresses multisensory perception. By altering the habitual way of seeing, hearing, orienting oneself, reality is challenged and daily life situations become subtly adventurous. Image and sound are captured live from the perspective of the city-wanderer, and displayed in real time onto his HMD. This is an important aspect: lifeClipper does not manipulate a certain space in its entirety, it does not reproduce a space in its three-dimensionality by integrating estranging, augmented effects into a smooth, homogenous surrounding. The installation leaves the synthesis of the perceived complexity up to the visitors. lifeClipper manipulates or enhances the habitually experienced surroundings according to site-specific presets: by altering the parameters of sound and image, as well as by adding music (composition, spoken text and sampling of documentary material), photo and video material (documentary and fictively arranged).

lifeClipper offers multiple, decontextualized possibilities newly arranged in a concrete setting where they are materially present to one another, in alien resonance and interference.

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[1]   Michel Serres. *Die fünf Sinne: Eine Philosophie der Gemenge und Gemische*. Translated from French by Michael Bischoff. Suhrkamp Verlag, Frankfurt am Main, 1998.

[2]   Malcolm McCullough. *Digital Ground*. MIT Press, Massachusetts 2004. P. 10.

This estrangement evokes unknown intensities which provoke the experiencing person to look for patterns and rhythms that are singular to the very instance of each experience. Many of the 200 lifeClipper visitors did react very intensely to irritations at the border between the real and the virtual – when they were not sure anymore if what they had seen was real or not. Since the audiovisually enhanced, multimodal ambient experience with lifeClipper is close yet also distant from any everyday setting, people don't compare their trips much with reality. In contrast, they are excited to explore the new medium with its own logic and feel of time and sense, and instantly started imagineering future adaptations of this design principle to the everyday world. As the installation's name suggests: lifeClipper maintains close relations to sampling techniques in the realms of video and music.

6   Imagineering – Towards Technologies of the Virtual

It is not the intention of lifeClipper to immerse the user completely into a purely artificial environment, but to render latent dimensions of his or her real world surroundings perceivable. lifeClipper offers different stories and respective ambiences like glasses through which different perspectives onto the circumstantial can be experienced. If technologies in general reveal the world to us in new means – like the microcosm that opens to our awareness beneath looking glasses, or telematic participation in what is distant either in time or place through telephone, TV, internet or the like, or energy bundled in mechanical principles making it possible to build the pyramids with bare hands, many thousand years ago – their function is to evoke visions that will have an impact on the future to come. In this sense, maybe, one could speak of technology as the practice of *imagineering*, as producing images for the unseen potential of the real world to be perceived. Such a perspective brings technology close to the philosophical concept of virtuality which goes back to the French philosopher Henri Bergson at the beginning of the 20th century, who made a lot of the latin origin of the world *in virtus*, meaning in *potential, containing the power to*. Inspired from Darwinian evolution theory, the tricky point for Bergson was how to conceive of the creativeness of evolution, of the new in terms of its newness: speaking of possibilities is unsatisfying for him, since what we can imagine to be possible at a certain moment is necessarily bare of what we cannot (yet) imagine, but what might nevertheless happen to become. In order to differentiate the new in its ontogenetic creativity from purely technological conceptions of the new in the sense of the possible, Bergson coined the concept of the virtual which has recently been picked up and further developed by Gilles Deleuze and Felix Guattari.

7   Imaging the Non-Imaginable

If lifeClipper augments reality, it does so not foremost by quantity. Evoked by superpositioning the real and the artificial within a single frame, the experience involves qualitative transformations, and these belong to the dimension of the virtual, of the new, of

the non-imaginable. Without having ever tasted Coca Cola, we cannot preclude what it might feel like to actually drink it. Equating the digital with the virtual confuses the apparitions, the new in its newness, with the artificially simulated. The medium of the purely digital is possibility, not virtuality. It is when the very emergence of sensation is concerned that the virtual enters the scene. Digital technologies have a connection to the potential and the virtual only through the analog, as Brian Massumi points out in his book "Parables for the Virtual": "*Certainly, if there is one day a directly virtual digitality, it will have become that by integrating itself into the analog (neural nets and other evolutionary systems), or again by multiplying and intensifying its relays into and out of the analog (ubiquitous computing). The potential for this becoming of the digital is missed as long as the relationship between the digital and analog is construed in mutually exclusive terms, as if one entirely replaced the other. A commonplace rhetoric has it that the world has entered a "digital age" whose dramatic "dawning" has made the analog obsolete. This is nonsense. The challenge is to think (and act and sense and perceive) the co-operation of the digital and the analog, in self-varying continuity. Apocalyptic pronouncements of epochal rupture might sell well, but they don't compute. When or if the digital virtual comes, its experience won't be anything so dramatic. It will be lullingly quotidian: no doubt as boring as the Web can be.*" [3]

Or, we might add, fascinating and adventurous as the quotidian can be. lifeClipper invites people to participate in the film of their own experience in the roles of an actor as well as of an observer, and even to become technologically equipped cyber tourists of the personally quotidian: Using a physical releaser fixed to the backpack, the visitors can take pictures of their augmented experience and will have them sent home by e-mail as a souvenir.

8   Staging Reality

What is it that lets designers so hesitantly explore the potential of AR and VR technologies in their working practice? One commonly stated reason for this concerns basic technical problems like shading, occlusion, semi-transparencies or jittering caused by unstable tracking data that are construed as insufficiencies in creating real looking simulacrae of three dimensionality translated into two dimensions. Thus up to today, the technological achievements of VR and AR lack shape, content and relevance as far as our Lebenswelt is concerned. We think that it is time for designers to start a dialogue with the technical engineers, for the spotted problems of these technologies may turn out to be of a much less dramatic impact once the idea to simulate the real is given up in favor of a lively interest in exploring the potential of digitally mediated abstraction for the complexification of immediate experience.

lifeClipper works with 2D and 3D representations as well as with the actual surroundings of the installation. We found that subtly altering the atmosphere of the quotidian environment is a powerful tool to evoke the virtual within the real. Displaying video and photo material as overlaid dimensions to the actual field of experience, or just partly composing 2D content

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[3]   Brian Massumi. *Parables for the Virtual*. Duke University Press, Durham&London 2002. p.142/143.

directly on the HMD display can be at least as effective as integrating it correctly within an overlaid 3D model of the experienced space. Slight changes and subtle irritations of the experienced reality have in fact turned out to be of a much stronger impact than an entirely simulated, pretentiously big MTV-show. Staging not only the simulated world in opposition to the real world, but staging the real world through introducing unobtrusive or also haunting simulations into the actual surrounds gives the technology of augmented reality an enormous impact – and would make it worthwhile for designers to explore, alongside with corresponding approaches within the field of drama, as for example the Wooster Group performs so intriguingly well[4].

Thus, creating real looking artificial figures and objects is not a primary goal – it makes more sense to take them from where they look most appealing: the real world. Abstract elements that do not pretend to be real, but that are grounded in reality though audiovisual bonds have a much stronger impact – for they do not ask us for identification, they invite us to regard them as companion species, to resonate with Donna Haraway's new manifesto about how to encounter what is alien, and what is new.

As experienced in cinema and TV, sound is a strong means for emotional involvement. Integrating and altering sounds captured with a microphone is just the analogue process to the image captured by a camera. Positioning additional sound correctly into the real world by fixing it to the calibrated 3D-modell strengthens the perception of a "new reality" and will be integrated in lifeClipper as a major new feature.

9   Quasi-objects and Quasi-subjects

Augmenting reality in the sense of altering the very milieu from where our sensations emerge naturally invites to look for the means of how this is achieved within various artistic disciplines. We briefly provide some examples from lifeClipper.

Cinematic immersion

An ancient cemetery is being converted into a mysterious film-like set. When entering the area, the scene slowly turns blue, and video feedback effects blur the visitor's head movements. On an ambient sound base whispers and breath are combined with visually displayed texts found on the graves and portraits of famous people buried there. The audiovisual elements appear according to the contextual user position.

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4   www.thewoostergroup.org

Situated radio play

While walking along the riverside, the poem "Das Wasserweiblein" (1839) by Karl Buxtorf-Falkeisen is read aloud and displayed via die HMD, accompanied by and composed into one scenario with visually supporting effects, overlaying the immediate field of experience. Parameters of sound and image change when looking towards the river or away from it.

Art graphic design – a guide system

A guide system has been evaluated using signals for different orders and warnings like: Stop!, Turn left!, Turn right!, You are leaving the area., Watch out!, Watch your step!, etc. The system might be required when a guide will lead more than one person at a time.

A vertiginously disorienting experience – empirical evaluations

There are limits of tolerability when adapting the parameters of sound and image. We carried out user tests by changing the amount of transparency, the level of brightness and contrast, going to the minimal frame rate and the maximal delay time, etc.

Convolutions of historical time

Documentary video material from the annual "day of the city wall towers " ("Tag der Tore") was recorded and displayed when the visitors get close to the corresponding parts of the old city wall. In a similar gesture, the handcrafted paper production in the local Swiss Paper Museum was recorded and is being overlaid, when the user sees the old wheel of the water mill.
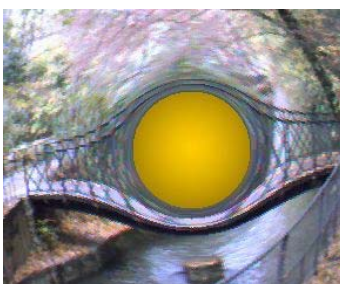
Convolutions of story-times

The preciseness of the GPS sensor allows to slowly build up a scene when walking towards it or away from it. We defined the old clapboard fountain situated in the middle of a square as the center of attention, and designed a scenery that when approaching the fountain processually built itself up through video effects and repetitive sound, until it finally explodes in a change of scenery, imploding and decreasing when leaving the area.

A spooky appearance?

When walking in a public area there are always unforeseeable situations and encounters which enrich the art installation. Someone unloading a lorry, cutting a hedge, or just passing by – it becomes part of the natural environment. Integrating them as part of the game makes each walk a unique experience.

Staged encounters

Human presence, encounter/confrontation, intimacy, etc are factors that come into play when working with real actors. Photo sequences of an actor shown at the position where they were taken before is a simple trick to irritate the visitors and make them question if he was real or not. Actors or objects can be placed in the real and the simulated world, and completely dissolve the boundaries between them.

Pictorial flashes

Images not fixed to a calibrated 3D-model, just displayed on the HMD-screen, can have strong impact when just coming in as short flashes or when only covering part of the screen as a mask.

10 Technological Background of lifeClipper

The technical equipment of lifeClipper is a system with of-the-shelf low budget hardware components including a video-HMD. Video is taken at a resolution of 320x240 pixels, which is blown up to 800x600 pixels. The video projected into the Head Mounted Display provides a viewing angle which covers 30% of the natural unrestricted one. When walking around the visitor's position and viewing direction is measured by means of a hybrid system (GPS and compass) and the found situation gets augmented according to defined presets. Audio and Video is rendered by MAX/MSP/Jitter, a software for real-time editing. Pressure sensors incorporated in soles to wear in one's own shoes are used for tracking walking behavior. A releaser allows taking pictures of the experienced scenes. The different scenes get triggered via color codes when the GPS receiver transmits the coordinates into a map of geographically positioned color fields. Future versions will minimize the equipment to make it wearable, and will improve higher speed as well as the viewing angle, which will result in enhanced flexibility for actualizing the virtual.
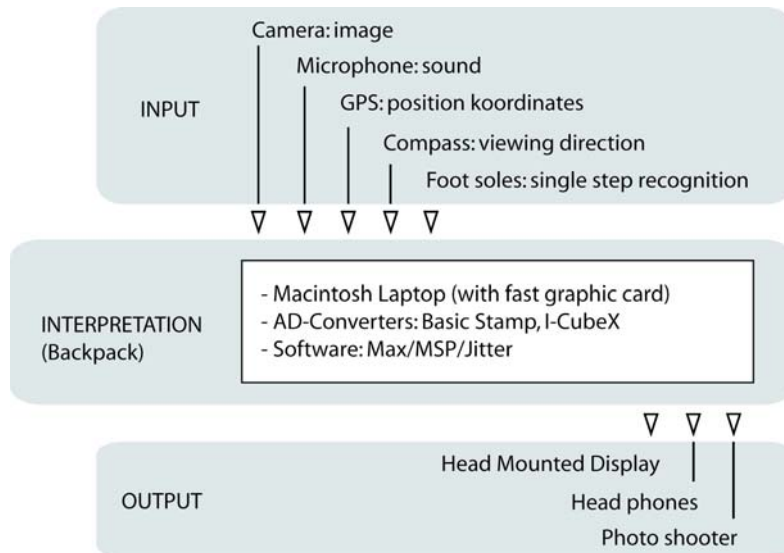
Fig.1: Technological Setup of lifeClipper, 2004

11 Augmenting Reality at the University of Art and Design Basle

lifeClipper is an outdoor art project. It could also be a project about the human experience of space and time and their authentic alteration as a topic of cognitive psychology. Or about optimized, multimodal edutainment. Perhaps also as a training station for computer game programmers, or a powerful tool for futuristic tourism. So far, lifeClipper is an outdoor art project, developed by Jan Torpus and Niki Leeke.

At the University of Art and Design Basle, we focus on the strategic goal of integrating art, technology, commerce, culture, and media in our practice of augmenting reality.